

REMARKS

Claims 10, 17, and 20-26 remain pending. Claims 10 and 21 are independent. The sole rejection has been repeated and made final. Applicants reply to clarify any misunderstanding regarding their view of the content of the Aoyagi reference and the deficiencies that are not made obvious by the combination of cited references. Applicants reply also to comment on the Examiner's argument that "the skilled artisan would recognize that an increase [in air flow] suggests that there was air flow to begin with," Final Office Action p. 5, by which Applicants take the Examiner to argue that there is air flow from the turbocharger compressor that is increased, a position that is not supported by the evidence.

Rejection Under 35 U.S.C. § 103(a) over Aoyagi et al. in View of Arnold et al. and Lahiff

Claims 10, 17, and 20-26 stand rejected as unpatentable over Aoyagi et al., U.S Patent Application Publication 2002/0172847 in view of Arnold et al., U.S. Patent No. 6,647,724 and Lahiff, U.S Patent Application Publication 2003/0068538. Applicants respectfully traverse the rejection and request reconsideration of the claims.

Applicants respectfully reiterate the arguments set out in the Response filed September 4, 2009 and offer these additional comments in response to the Examiner's comments on pages 5 and 6 of the present Office Action.

Applicants' representative regrets the incomplete thought that began the argument in the previous response on page 2 and apologizes for the misunderstanding it caused the Examiner.

The Examiner argues that "since the Aoyagi et al. is used as a base reference there is no need for reasons, or motivation, to use the controller to monitor power demand from the fuel cell." This is a legally incorrect position. Under *KSR*, there must be a reason in the art to make

any modification to Aoyagi's fuel cell that is necessary to arrive at the claimed invention. This legal requirement cannot be abrogated by an examiner "finding" it unnecessary.

To reiterate, there is no reason, either in the Aoyagi patent or from any other evidence of record, for the Aoyagi apparatus to be modified to have a controller that monitors a power demand from the fuel cell and that selects a power source for the compressor motor from a main power source and a supplemental power source. The Aoyagi patent also fails to teach or provide a reason for basing this selection on whether the compressor motor is operating in a normal mode or in a rapid transient mode. The Aoyagi patent additionally fails to teach or provide a reason for providing a controller that controls charging of the supplemental power source. None of the other evidence of record The Aoyagi fuel cell has a "fuel cell control means for controlling an amount of the reacting gas supplied from the reacting gas supply means to the fuel cell based on a target supply current" and "an output current of the fuel cell," paragraph [008]. Fig. 5 illustrates a control means for correcting the target supply current. Paragraph [0024]. Vehicle control unit 9 outputs a signal representing energy required by the vehicle drive unit. [0027]-[0028]. Fuel cell control means 5 determines how much current can be supplied by the fuel cell, paragraph [0031], and outputs a rotational speed command to an air compressor controller 18 to supply air to the fuel cell cathode, paragraph [0033]-[0034]. Fuel cell control means 5 also controls operation of a cooling pump. Paragraph [0037]. Nowhere does this reference, or any of the other references of record, provide either the features of the claimed controller or any reason to modify one of the Aoyagi controllers in the claimed way.

The rejection is deficient because it identifies no reason to modify the Aoyagi fuel cell system, whether in view of the other cited references or elsewhere in the art, to provide a controller that monitors a power demand from the fuel cell and that selects a power source for

the compressor motor from a main power source and a supplemental power source, basing this selection on whether the compressor motor is operating in a normal mode or in a rapid transient mode, or a controller that controls charging of the supplemental power source.

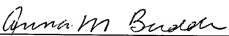
These defects are not remedied by the Arnold patent. The Arnold patent teaches a turbocharger for an IC engine. The Arnold patent teaches that its compressor is only operated for only “a few second or so,” col. 5, ll. 64-65 and “each burst does not exceed approximately 10 seconds,” col. 6, l. 2-3. The evidence of record is that “[a] turbocharger is used to increase the specific output of an IC engine by raising the manifold air pressure (MAP) and air flow into the IC engine by powering a centrifugal air compressor impeller with an expander wheel on a common shaft converting energy contained in the exhaust gas stream to shaft power.” Declaration of Joseph D. Rainville Under 37 C.F.R. § 1.132, page 4. The Examiner argues that “an increase suggests that there was air flow to begin with.” However the skilled artisan, even those not so skilled would recognize that an IC engine need not be turbocharged to have airflow to it. The Examiner’s simplistic argument ignores this fact, in addition to ignoring the explicit teaching in the Arnold patent itself that its compressor is powered for only a few seconds at a time, as taught in the passage just quoted. A modification of the Arnold compressor with the Aoyagi fuel cell results in an inoperable fuel cell because, as Applicants earlier pointed out, intermittent bursts of air to a fuel cell makes the fuel cell inoperable.

In column 6, the Arnold reference teaches examples “wherein each burst does not exceed approximately 10 seconds.” In this kind of use, “[a]n exemplary method may include start-up through use of stored power (e.g., capacitor and/or battery) followed by use of on-line power form a turbine generator. In such an exemplary method, stored power is used for only a few seconds (e.g., approximately 2 seconds to approximately 3 seconds). Consider an exemplary

method that includes discharging one or more capacitors to power an electric compressor unit for approximately 3 seconds and switching to on-line power from a [sic] electric turbine unit operating as a generator, or, alternatively, switching to another capacitor or group of capacitors.” Thus, this passage, on which the Examiner relies for teaching switching power sources, contemplates only a very short (about 10 second) use of the compressor. Before that, the compressor is off. After that, the compressor is off. The only discussion of a “rapid transient mode” is Applicants’ own disclosure, not the Arnold patent.

Because of these deficiencies of the combined references cited in rejection, reconsideration and allowance of the claims are thus respectfully requested.

Respectfully submitted,


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